UNIVERSAL DESIGN

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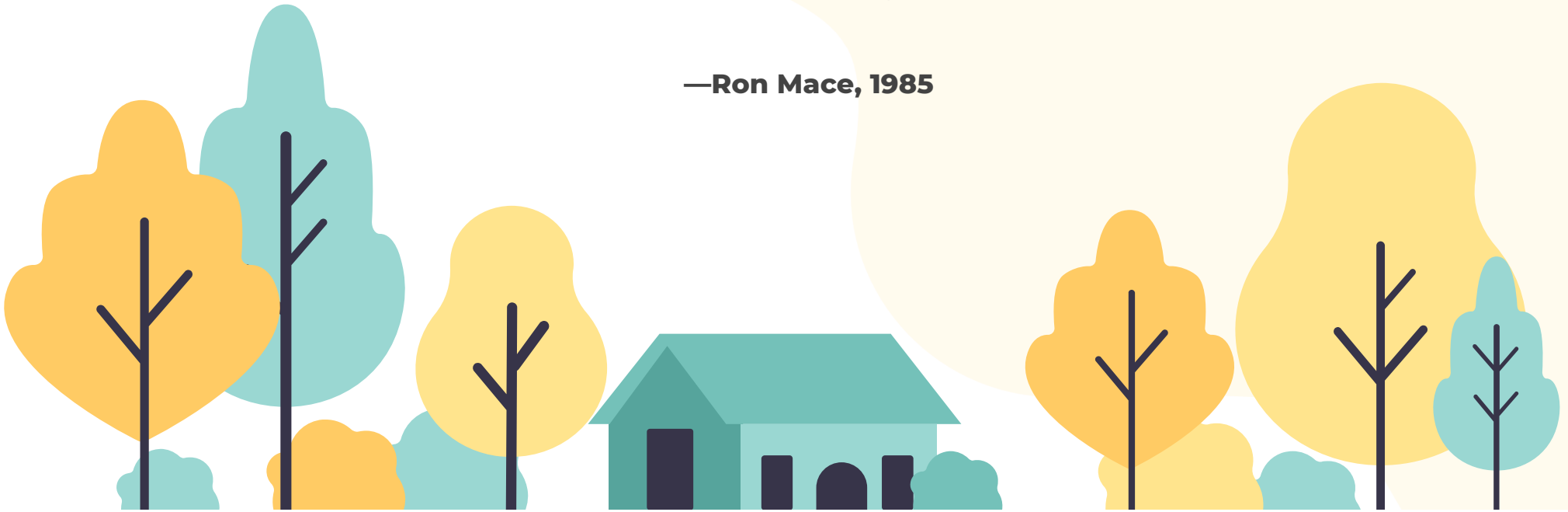
"Universal Design is design that's usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."

—Ron Mace, 1985



KEY POINT – UNIVERSAL DESIGN IS USABLE BY ALL PEOPLE TO THE GREATEST EXTENT POSSIBLE

- **Focus is on EVERYONE**
  - Designing something to be **as functional as possible for as many people as possible**
  - Make life easier, more convenient and comfortable

- **Safer & Healthier** for **EVERYONE**

- **Inclusive:** Multigenerational, genders, cultural backgrounds, abilities, households

- **Attractive** design, pleasing aesthetics. Good design is INVISIBLE

- **Purchasable** by **EVERYONE**

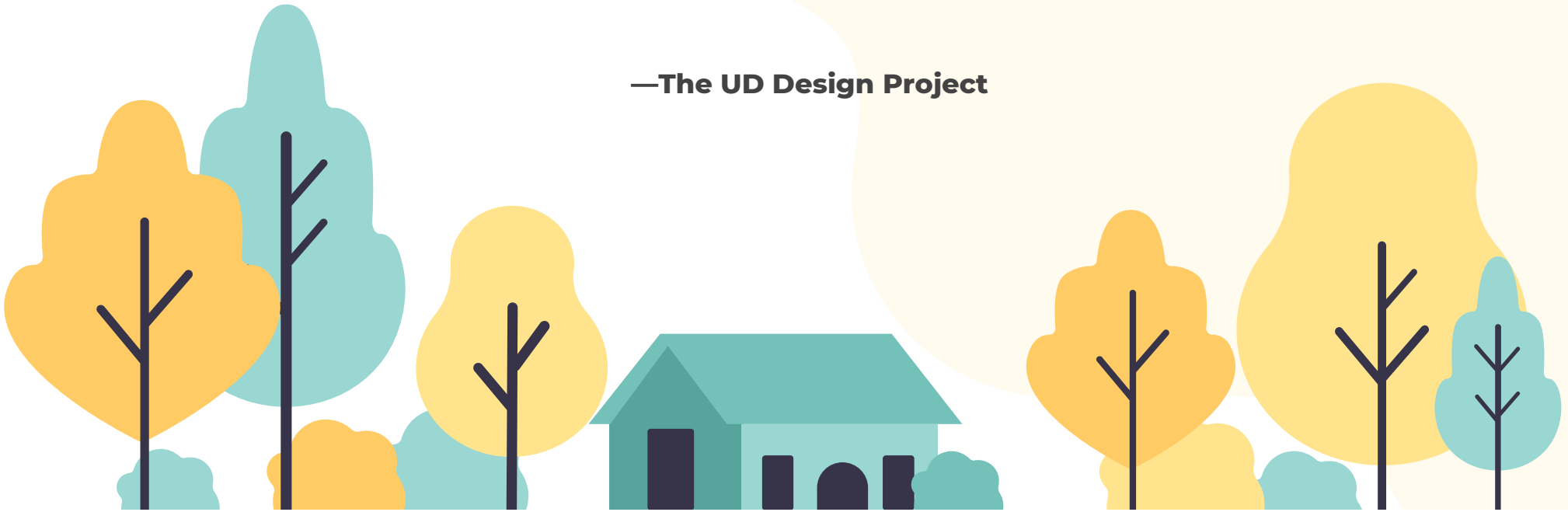
- **Visitable** by **EVERYONE**

- **Flexible** features
  - Adjustable as life circumstances and needs change
  - No one goes through life without experiencing some disabling conditions

- **A Process** applied to homes, parks, playgrounds, schools, businesses, community buildings. **ALL ENVIRONMENTS**.

"If universal design is the foundation for design, adding specialized features as-needed is much easier and more cost-effective than if a design is fully specialized.."

—The UD Design Project



UNIVERSAL DESIGN FEATURES – FLEXIBLE TIERS

Invisible!

More livable and safer for ALL!

Foundation

1. Minimum ONE zero step entry
2. Bedroom, living area & bathroom on one floor that is barrier free.
3. Wide doorways (36" wide)
4. Bathroom*
   - Space/layout
   - Blocking
   - Shower specs

1. Lever door handles
2. Single lever faucets
3. Rocker light switches
4. Flooring transitions
5. Lighting
6. Cabinetry & appliances types, features, layout & accessories**

1. 5 ft turn around space strategically located*
2. Curbless shower (opening min. 36", rec. 42")*
3. Cabinets & appliances types & layout**
4. Windows
5. Extra floor space

1. Smart Home technology
2. Elevator
3. Stair lifts
4. Individually customized cabinet & appliance types, layouts, heights, controls
5. Power adjustable cabinets and surfaces (i.e., sink, cooktop)
6. Customized placement of switches, outlets and controls
7. Ceiling lifts/tracks
8. Grab bars

*Think 5 ft turn-around space strategically. IF this is done, livability for a wheelchair user increases!

BENEFITS

ADDRESSES HOUSING SHORTAGE

INCLUSION

COST EFFECTIVE

MULTIGENERATIONAL

THE FUTURE

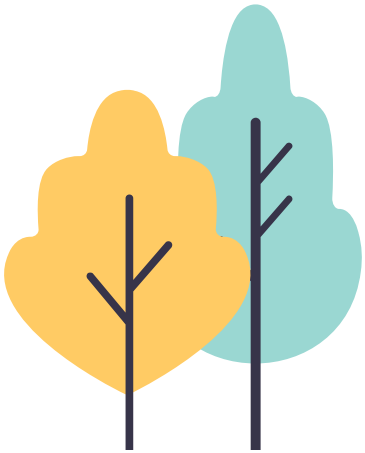
WHO BENEFITS?

- Parent with stroller
- Student or adult bringing in a bike
- Grandparents visiting
- College student moving in/out
- Delivery drivers. Fire/EMS
- Older people who want to stay in their home.
- Injured family members
- Pets
- Persons with disabilities.
- The environment

EVERYONE!

MYTHS, MISPERCEPTIONS, BELIEFS & WIDESPREAD CONFUSION

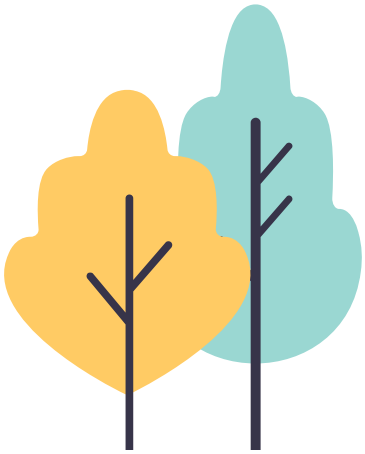
- Terminology
- Looks Institutional & Clinical
- Only for a small, select group of people
- Reduces value and marketability
- Costly



TERMINOLOGY – UNIVERSAL DESIGN IS NOT THE SAME AS:

ADA

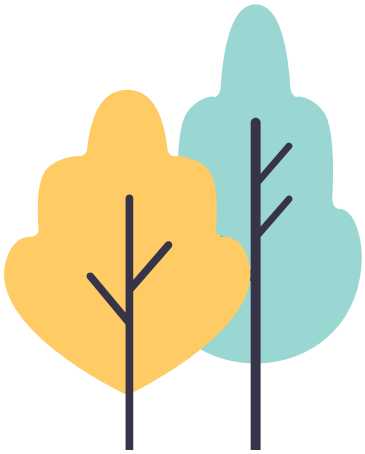
- Often confused with Universal Design
- Commercial – Standard design
- Fully specialized design
- One size fits no one, including those who use wheelchairs
- Not always appropriate/usable by many people with disabilities
- Standards are needed and MUST be required
- Has also done some damage in promoting inclusive housing
    - Perception that we have 'taken care of that problem'
    - 'Cookbook' approach
- IMAGE is clinical and institutional
- Changes/updates to outdated ADA standards are very slow



TERMINOLOGY – UNIVERSAL DESIGN IS NOT THE SAME AS:

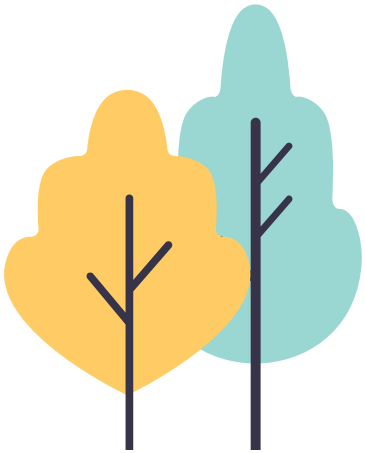
Visitability

- Features that allow visiting (i.e., go in/out and use a toilet/sink)
- Three requirements
  - ONE zero step entry
    - Does not demand a front entrance if a side, back or garage entrance is the most feasible
  - 36” wide doors to enter the dwelling and to a bathroom
  - Minimum of a ½ bath that is accessible on the main floor
- NOT designed specifically for a person with a disability or to age in place
- Visitable but not necessarily ‘livable’.



TERMINOLOGY – UNIVERSAL DESIGN IS:

LIVEABILITY rather than just ACCESSIBILITY!

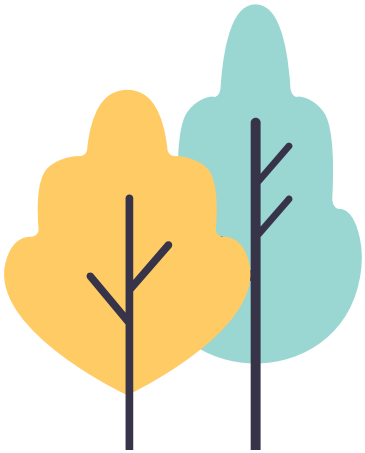


LOOKS INSTITUTIONAL & CLINICAL

INTENDED ONLY FOR A SMALL POPULATION OF PEOPLE

- Only for people with specialized needs, as opposed to EVERYONE
- Who are 'those' people who need more specialized design and features?

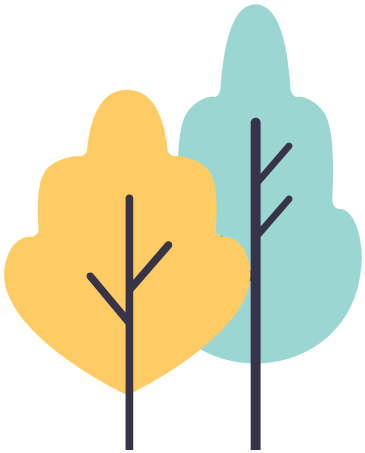
- Statistics and Demographics
  - 70% housing stock single family with beds on 2nd floor, based on average height of 20–40-year-old male.
  - Survey Age 45+– where do you want to receive services & supports in future? 81% at home with caregiver assist
  - Need for home and community based will increase 34%
  - At least 21% of US households have at least one person with a physical limitation
    — Journal of the American Planning Association
  - 17% of population is 65 years and older
    --US Census Bureau
  - More than 20% of the population will be 65 years and older by 2050
    — AARP



Universal Design is for EVERYONE!

REDUCES HOME VALUE & MARKETABILITY

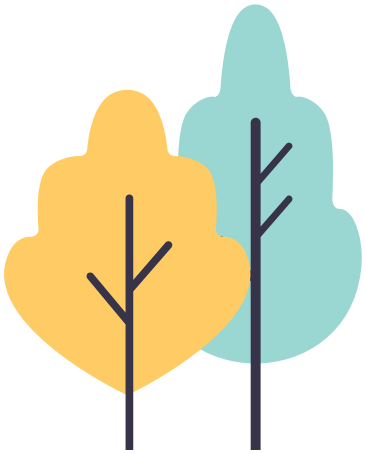
- Belief looks clinical/institutional – looks like ADA
- Features can be added or removed as needed
- The biggest gap in affordable housing
- Huge shortage
- Huge market and growing
    - Per the UD Design Project; Census Bureau 2008:
        - Approximately 140,000,000 housing units in the USA.
        - Less than 200,000 housing units (< 0.15%) are universally accessible.
        - Over 67,000,000 adults in the USA live with a disability.
        - 88 million U.S. residents will be over 65 by 2050, more than 20% of the population
- Supply doesn't come close to meeting current or future needs!



Universal Design enhances sale and re-sale!

COSTLY

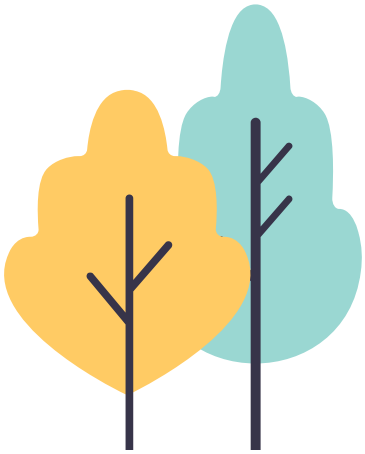
- Zero step entry
  - Key to keeping costs down is to position the house on the lot and grade the lot with the zero-step entrance in mind. This is already done for look-out windows and drainage!
  - Practical for majority of lots
  - Development planning
  - Look for low-cost options (for ONE zero step entry):
    - Over 2/3 of new homes have attached garages (2). Often the zero-step entrance can be constructed from the garage by planning the house floor and garage floor on the same level
    - Front, back or side entrances that do not require entering through the garage
    - Grading can allow a sidewalk or short bridge leading directly to the porch
  - The "notched foundation" method is used for thousands of homes with basements in Bolingbrook IL for a lower floor, at a cost estimated at approximately $ 500.
- Creating a zero-step entry with existing steps



COSTLY TO NOT ADOPT UNIVERSAL DESIGN!

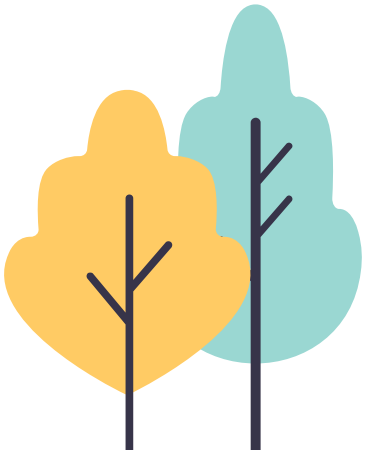
Universal Design Lowers Costs!

- **Injury and medical expenses**
  - Unable to go home either temporarily or permanently
  - Only alternative often a MUCH higher cost placement
  - Alternative placements are often NOT available
- **Safety**
  - Reduces Falls and accidents
  - Reduces injury to family members, EMS, healthcare who care for the injured
  - Reduces insurance cost
- **Poor fit costs**
  - Compromises livability, quality of life, safety - with associated costs from that fall-out
  - Takes a toll on humans—more 'wear & tear' on the body
  - Unnecessary features put in
  - Necessitates more home modification either due to poor fit to begin with or changing needs that can't be inexpensively accomodated



COSTLY TO NOT ADOPT UNIVERSAL DESIGN!

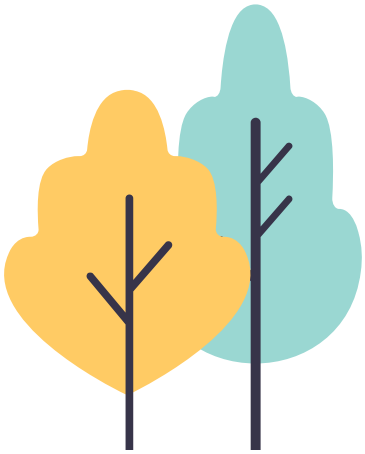
- **Remodeling – Home modification without Universal Design 'foundation' features is EXPENSIVE**
  - Ramps
  - Lifts
  - Additions
  - Not as effective in both Livability and in Safety – Poor fit takes it's toll
  - Often creates a clinical/institutional look
  - Reduces marketability
  - Sometimes IMPOSSIBLE to do
  - Environmental Costs
    - Remodeling entrances, doors and bathrooms wastes money, energy and materials
    - 75-90% of disability-related remodeling costs would be saved if a zero-step entrance and adequate door widths were already in place.



Universal Design Lowers Costs!

COSTLY TO NOT ADOPT UNIVERSAL DESIGN!

- **Social Costs**
  - Isolated due to effort and safety going in/out of home
  - Some CANNOT get out of their home
  - Exclusion from neighborhoods, community, visiting friends
  - Loss of neighborhood diversity (i.e., multigenerational, ableism . . .)
- **Medical & Insurance Costs**
- **Additional Support Service Costs**
  - Displacement
  - SHORTAGE of affordable housing
    - Magnified for older persons and persons with disabilities



Universal Design Lowers Costs!

‘FOUNDATION’ FEATURES – 1. ONE Zero Step Entrance

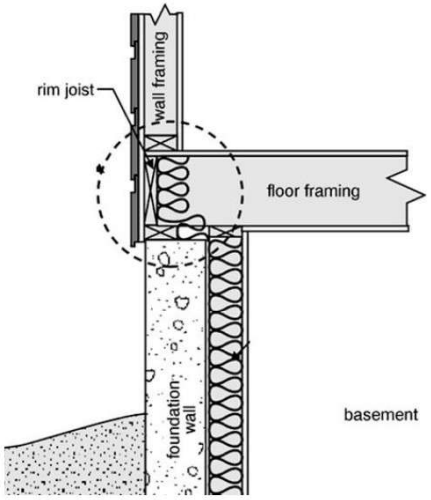
Practical in more than 95% sites

ONE!
Front, side, back or through garage

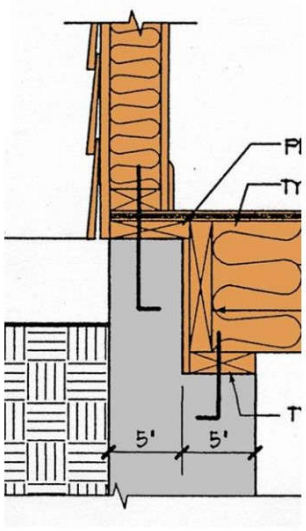
(http/visitability.org)

‘FOUNDATION’ FEATURES – 1. ONE Zero Step Entrance

Bolingbrook, IL 4000+ houses with zero step, most with basements with added cost of $500 (2012)



Conventional method: All of the framing is on top of the foundation.



Alternative method: Set the floor joists into a notch at the top of the foundation.

(https://visitability.org)

DEMO ACTIVITY

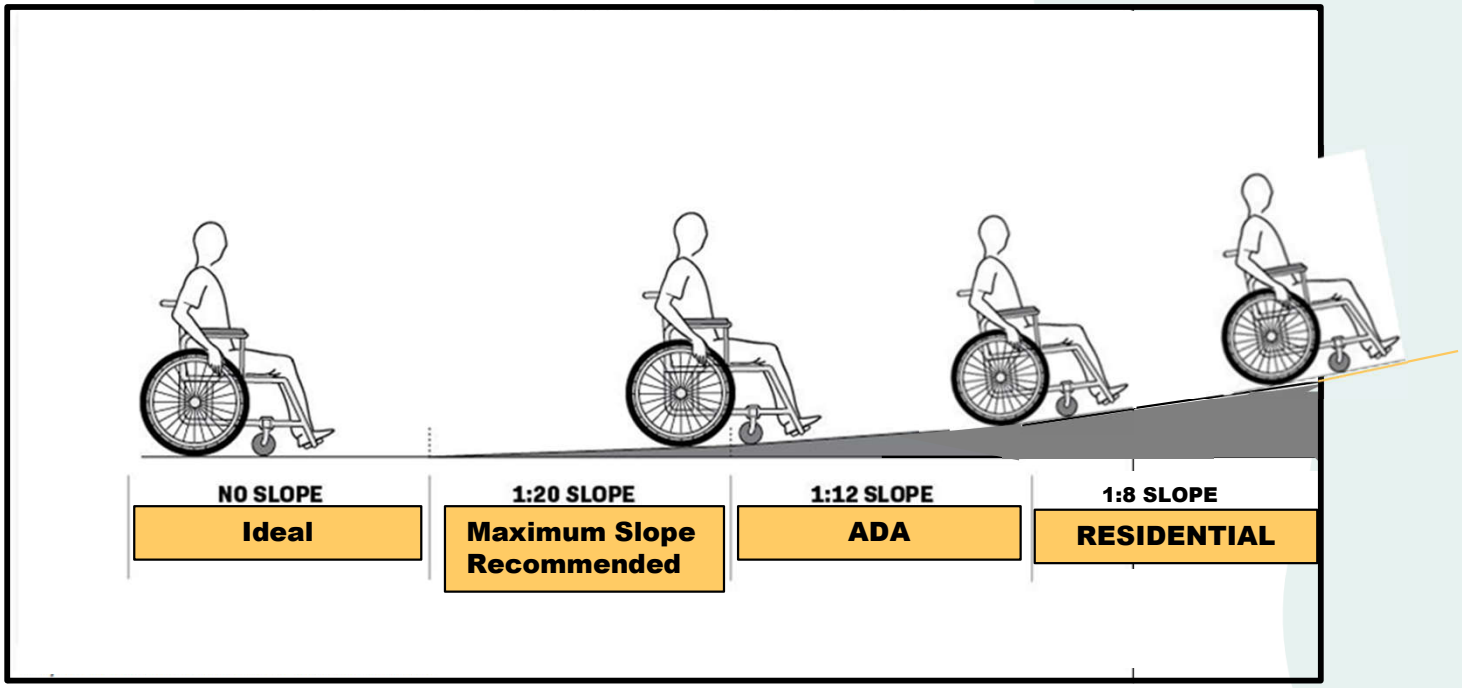


Table of Common Slopes in Architecture

DEGREES	GRADIENT	PERCENT
2.86°	1 : 20	5%
4.76°	1 : 12	8.3%
7.13°	1 : 8	12.5%

Amount of Ramp Needed

3 STEPS WITH 21 INCH RISE
35 FEET
21 FEET
14 FEET

‘FOUNDATION’ FEATURES – 1. ONE Zero Step Entrance









Note: Images show mostly problematic and sadly, often common solutions used due to a lack of ONE Zero Step Entrance into these homes

(https://visitability.org)

‘FOUNDATION’ FEATURES – 2. One floor with a barrier-free bedroom, living area and bath

Key word: ‘barrier-free’

‘FOUNDATION’ FEATURES – 3. Wide Doorways

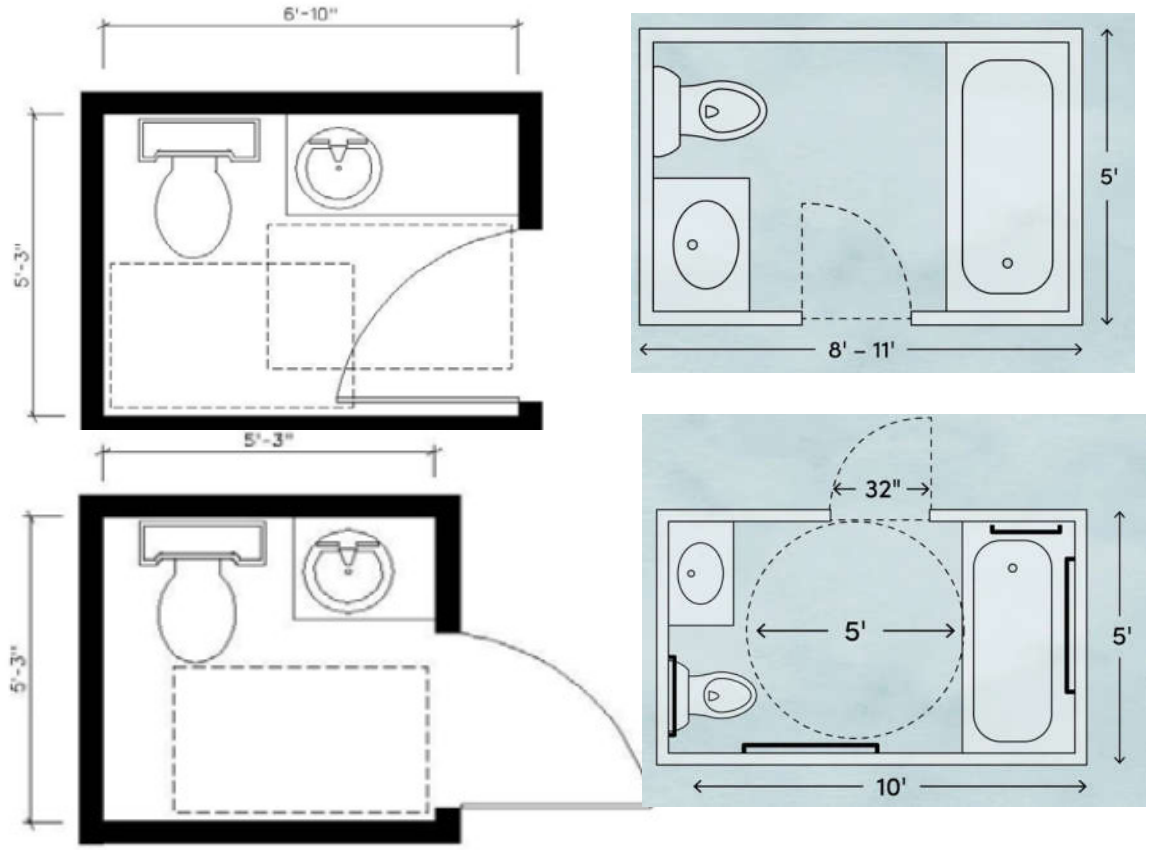
DEMO ACTIVITY

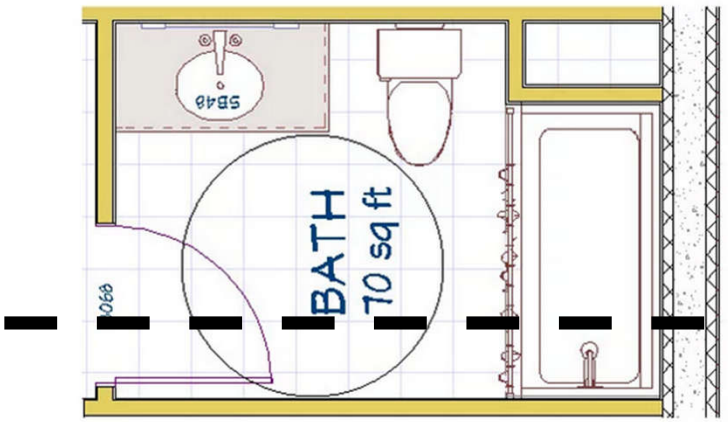
- Standard door sizes of 2/6 (30”), 2/8 (32”) and 3/0 (36”).
- That is the size of the door and not the clearance width to go through it.
- Minimum recommended door width to allow persons with disabilities to pass through is 36 inches.
- 36 inches door with clearance width of 32”
- 36” doors are widely available in different types
    - Clearance can be greater with pocket and barn doors
- Think about all doors in a home

Image: https://build.com.au/standard-door-sizes

DEMO ACTIVITY

‘FOUNDATION’ FEATURES – BATHROOM: SPACE



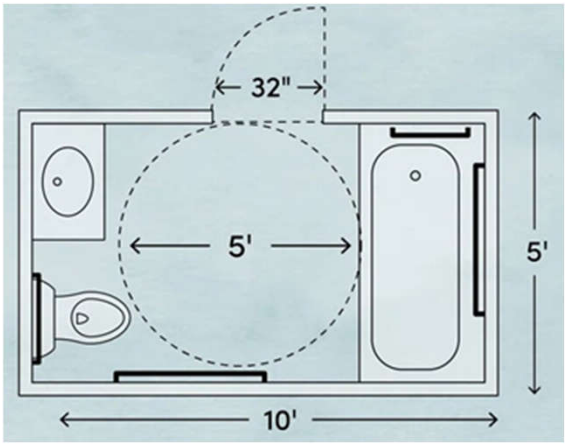


50 sq ft versus 70 sq ft

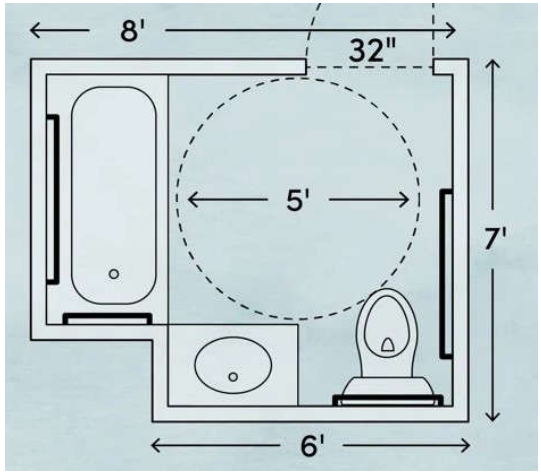
Note: Examples show the importance of space in design. Not all examples represent Universal Design.

Images: Wayfair (green) & Houzz

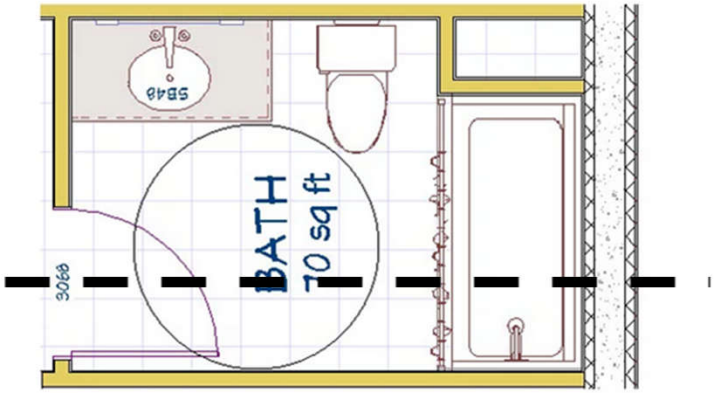
‘FOUNDATION’ FEATURES – BATHROOM LAYOUT



50 sq ft



56 sq ft

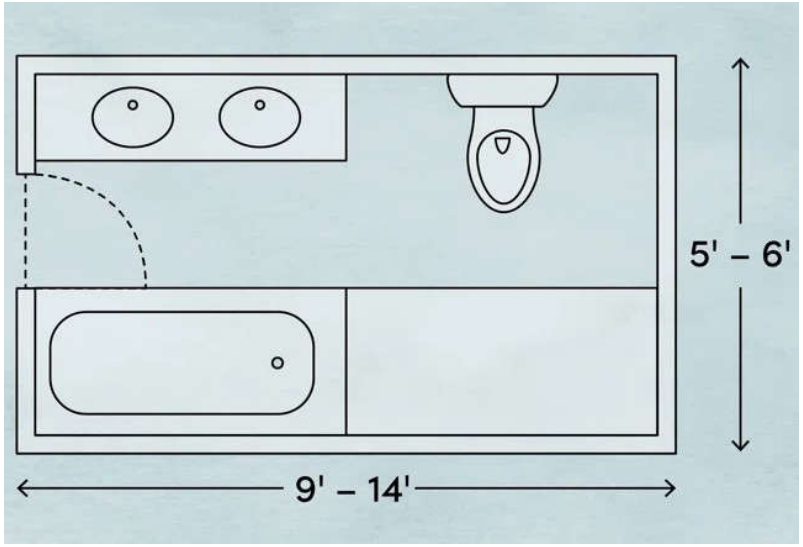


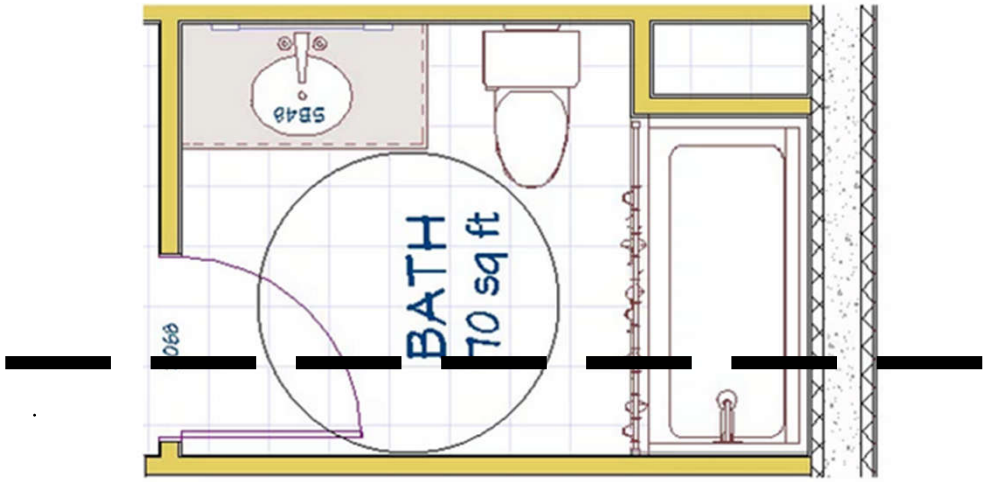
50 sq ft & 70 sq ft

Note: Examples illustrate minimal universal design features in terms of layout.

Images: Wayfair (green) & Houzz

‘FOUNDATION’ FEATURES – BATHROOM LAYOUT

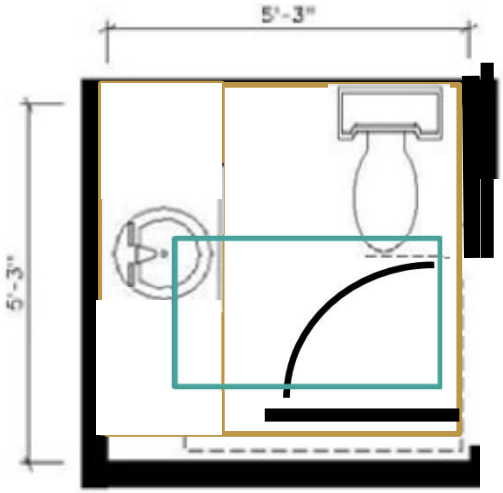


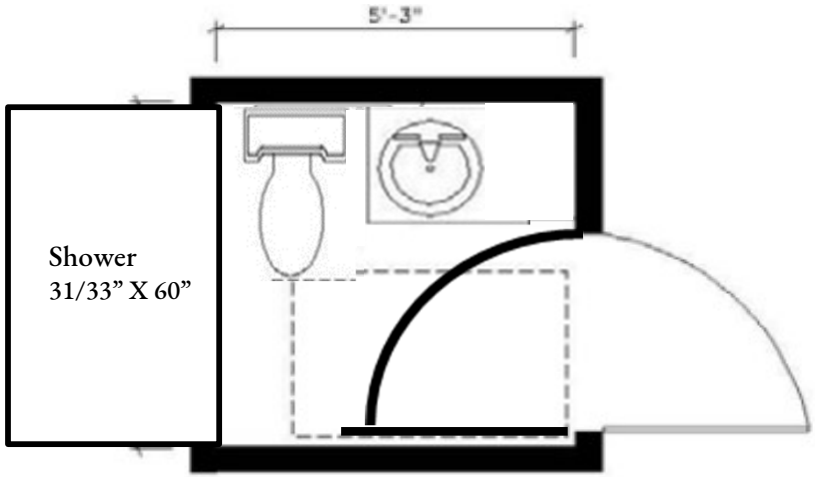


Note: Examples demonstrate importance of layout of fixtures. Example on the left is inaccessible as drawn and remodeling would likely require moving (if possible) fixtures/plumbing to gain some accessibility.

Images: Wayfair (green) & Houzz

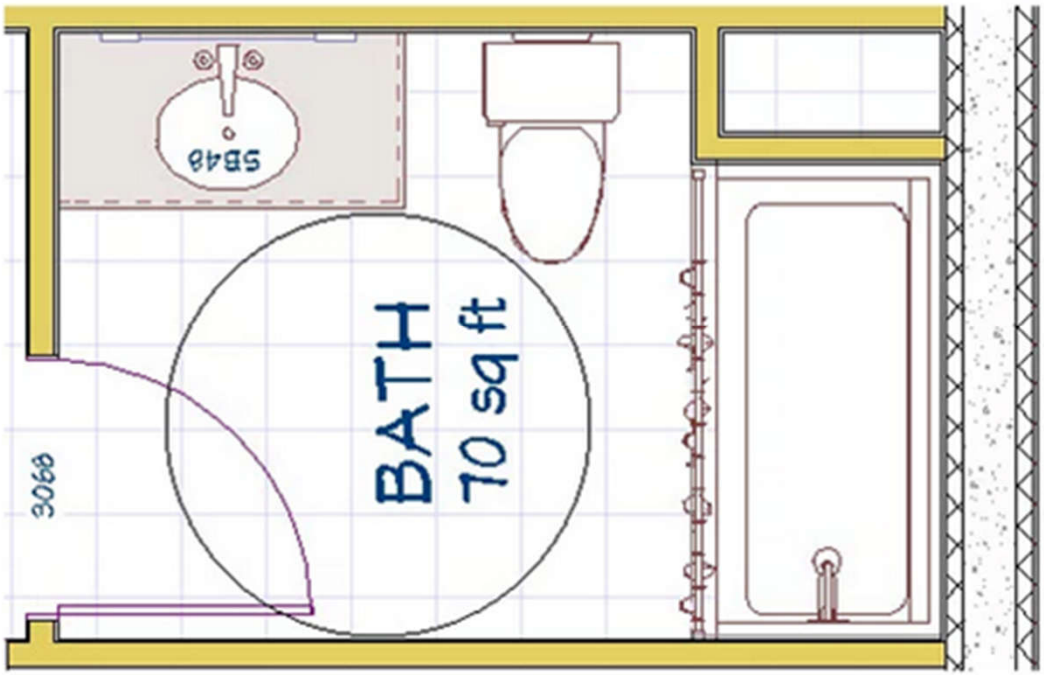
‘FOUNDATION’ FEATURES – BATHROOM LAYOUT





Note: Example on left shows a ½ bath with a problematic layout requiring moving fixtures to improve accessibility. This remodeling example results in a bathroom that still does not meet Universal Design expectations to be functional for someone using mobility equipment.

‘FOUNDATION’ FEATURES – BATHROOM: BLOCKING, SHOWER SPECS



- **Blocking:** Think ‘universal’ vs. ADA

Note: Needed in more places than ADA states

- **Showers**: Think ‘universal’ vs. ADA

Images: Wayfair (green) & Houzz

BARRIERS

01

Lack of understanding and awareness

- Myths, Beliefs, misperception
- Widespread confusion with ADA
- Looks Institutional & Clinical
- Devalues home & marketability
- Costly

02

Shortage of labor with knowledge about Universal Design

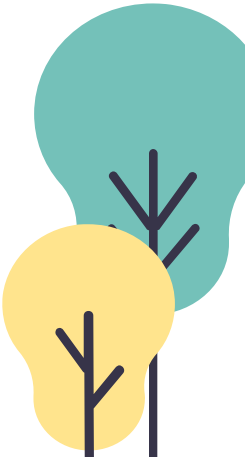
- Understand Roles, responsibilities
- Connect with the right people
- Discretion with 'show & tell'
- Thoughtful with 'trial' approach

- Always start with the 'Foundation'
- Communication & teamwork

03

Policy

- Funding requirements
- Accessibility legislation



02 –WHO NEEDS TO KNOW ABOUT UNIVERSAL DESIGN?

Architects

Other designers: Interior, Industrial, Kitchen, lighting

Builders, Developers, Remodelers, Subcontractors, trades

Product Suppliers (i.e., appliances, products, materials)

Realtors

Specialized Equipment vendors

Advocacy Groups (i.e., green/sustainability, affordable housing, insurance, Medicare/Medicaid savings groups, EMS & fire, Habitat for Humanity)

Occupational Therapists

Other specialists (i.e., healthcare, AT, vision rehab. engineers)

Service providers (healthcare, social serv.)

Government

Consumers

Business

Financial & funding

Additional Training (i.e., CAPS--Certified Aging in Place Specialist; ECHM--Executive Certificate Home Modification; SCEM—Specialty Cert. in Environmental Modification)

Elected officials

UNDERSTAND ROLES & CONNECT WITH THE RIGHT PEOPLE

- An individual's specific area of training/licensure (i.e., contractor, arch., OT) determines the extent of the role and responsibilities a person can assume in providing home modification and universal design services.
- When this doesn't happen, misapplication can result in unintended consequences
  - Unnecessary features/options
  - Poor fit for what is needed:
    - Affects both SAFETY AND LIVABILITY
    - Takes a toll on humans. Unnecessary 'wear & tear'
    - Requires MORE home modification
  - An institutional, clinical 'special' look (i.e., awkward features such as ramps)
  - A negative image that is devalued in the marketplace
  - Marketed as 'universal' or accessible when they are not
  - Jeopardizes funding

Overgeneralization; Oversimplification

HIGHER COSTS!

KNOWING ABOUT UNIVERSAL DESIGN MEANS:

- Use discretion with 'Show & Tell'
- Do NOT use a 'Cookbook' Approach (i.e., do not defer to early institutional standards such as ADA)
- Thoughtful with 'trial' approach
- Connect with the right people

    - Recognize that appropriate design and product choices can be very complicated due to diversity of individuals and households, and what LIVABILITY means for them

    - Individualized, customized needs require a rehabilitation specialist (i.e., OT) to prescribe a home modification or build plan
        - Including for someone in a wheelchair.

WHAT CAN EVERYONE DO?

- That said . . . What can Everyone do?
  - Start with the 'Foundation' features
  - Then– Ask, what can be changed or added later if needed, what can't and at what cost?
  - Keep an open mind, creative problem solving
  - Connect with the right people and work together
  - Generate NEW ideas, create new ways to build and create better products
    - Doesn't happen in isolation
    - Many standard conveniences today were originally designed specifically for people with disabilities!

UNIVERSAL DESIGN FEATURES – FLEXIBLE TIERS

Foundation

- Architect
- Designers
- Builder
- Developer
- Realtor
- Sales
- Consumer
- CAPS, ECHM or SCEM
- Occupational Therapist*

1. Minimum ONE zero step entry
2. Bedroom, living area & bathroom on one floor that are barrier free
3. Wide doorways (36" wide)
4. Bathroom characteristics
   - Space/layout*
   - Blocking
   - Shower specs

- Architect
- Designers
- Builder
- Developer
- Realtor
- Sales
- Consumer
- CAPS, ECHM

1. Lever door handles
2. Single lever faucets
3. Rocker light switches
4. Flooring transitions
5. Lighting
6. General cabinet & appliance types, features, layout & accessories

- Architect
- Designers
- Builder
- Realtor
- Sales
- Consumer
- CAPS, ECHM, SCEM
- Occupational Therapist*

1. 5 ft turn around space strategically located*
2. Cabinets & Appliances: Types, layouts, features*
3. Curbless shower (opening min.36', rec. 42")
4. Windows
5. Extra floor space

All the above PLUS:

- Specialized Equipment Vendors+
- Occupational Therapist*
- Other specialists (i.e., healthcare, AT, vision, engineers)*

1. Smart Home technology*+
2. Elevator*+
3. Stair lifts*+
4. Individually customized cabinet & appliance types, layouts, heights, controls*+
5. Power adjustable cabinets and surfaces (i.e., sink, cooktop)*+
6. Customized placement of switches, outlets and controls*
7. Ceiling lifts/tracks*+
8. Grab bars*

*Think 5 ft turn-around space wherever possible. IF this is done, livability for a wheelchair user increases!

03 - POLICY

- Funding requirements
  - Projects
  - Individuals

- Accessibility legislation

SOLUTIONS

PROMOTE AWARENESS & EDUCATE
Get the word out!
Change the image!
Show solutions!

REDUCE COSTS
Build in the 'foundation' and add features as needed!
Reduce unnecessary remodeling!

FORM PARTNERSHIPS
Understand roles!
Teamwork!
Connect with the right people!

ADOPT INCLUSIVE APPROACH
Multigenerational!
Gender & culturally inclusive!

BE CREATIVE
This IS a window of opportunity!
Plan NOW!
DREAM!

IN CLOSING

UNIVERSAL DESIGN IN ALL ENVIRONMENTS . . . HOMES, SCHOOLS, PARKS, PLAYGROUNDS, BUILDINGS!

NEIGHBORHOODS & COMMUNITIES INCLUDE EVERYONE!

UNIVERSAL DESIGN IS ESSENTIAL TO REDUCE COSTS FOR EVERYONE!

RESOURCES

- **The UD Project**
  - https://universaldesign.org/

- **National Council on Independent Living**
  - https://visitability.org/quick-guide-to-low-costs-of-visitability-vs-costs-of-no-change/visitability-costs-affirmed/

  - Visitability Train the Trainers Webinar: Presented by Eleanor Smith
    - https://visitability.org/visitability-train-the-trainers-webinar-presented-by-eleanor-smith/

THANKS

All Star Mobility

2180 Hallie Rd.
Chippewa Falls, WI
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Wayne Larson/Jason Knetter

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